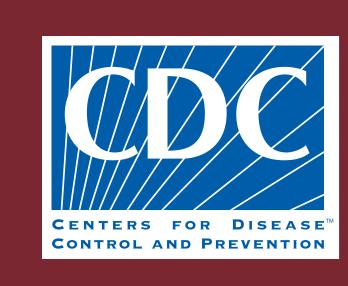


Defining Clinical Condition Categories for Biosurveillance

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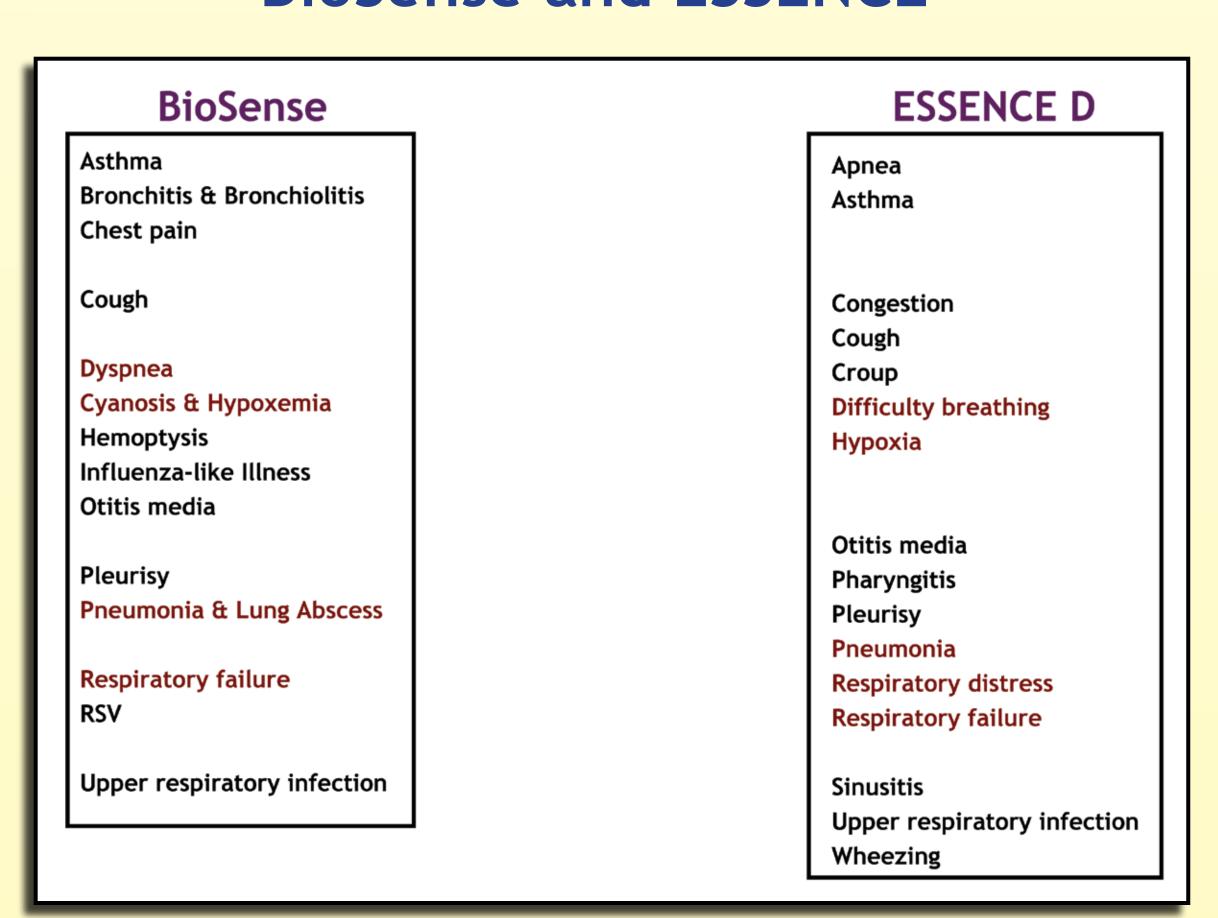
Objective

■ To create a set of clinical condition categories based on explicit criteria for use in aggregating chief complaints and coded diagnosis data in biosurveillance programs.

Background

- ESSENCE and BioSense currently aggregate ICD-9-CM diagnosis data and chief complaint free text into 11 broad syndromes groups¹, namely botulism-like, hemorrhagic Illness, lymphadenitis, localized cutaneous lesion, gastrointestinal, respiratory, neurological, rash, specific infection, fever, and severe illness or death.
- Biosurveillance programs have also created diverse sets of more granular clinical condition categories (called "sub-syndromes" in the BioSense and ESSENCE programs). These subsyndromes
- Are more granular than syndromes
- cover a broader range of conditions then typical syndromic surveillance (e.g., injuries, chronic disease)
- Different biosurveillance systems use different clinical condition categories, even for the same syndrome.

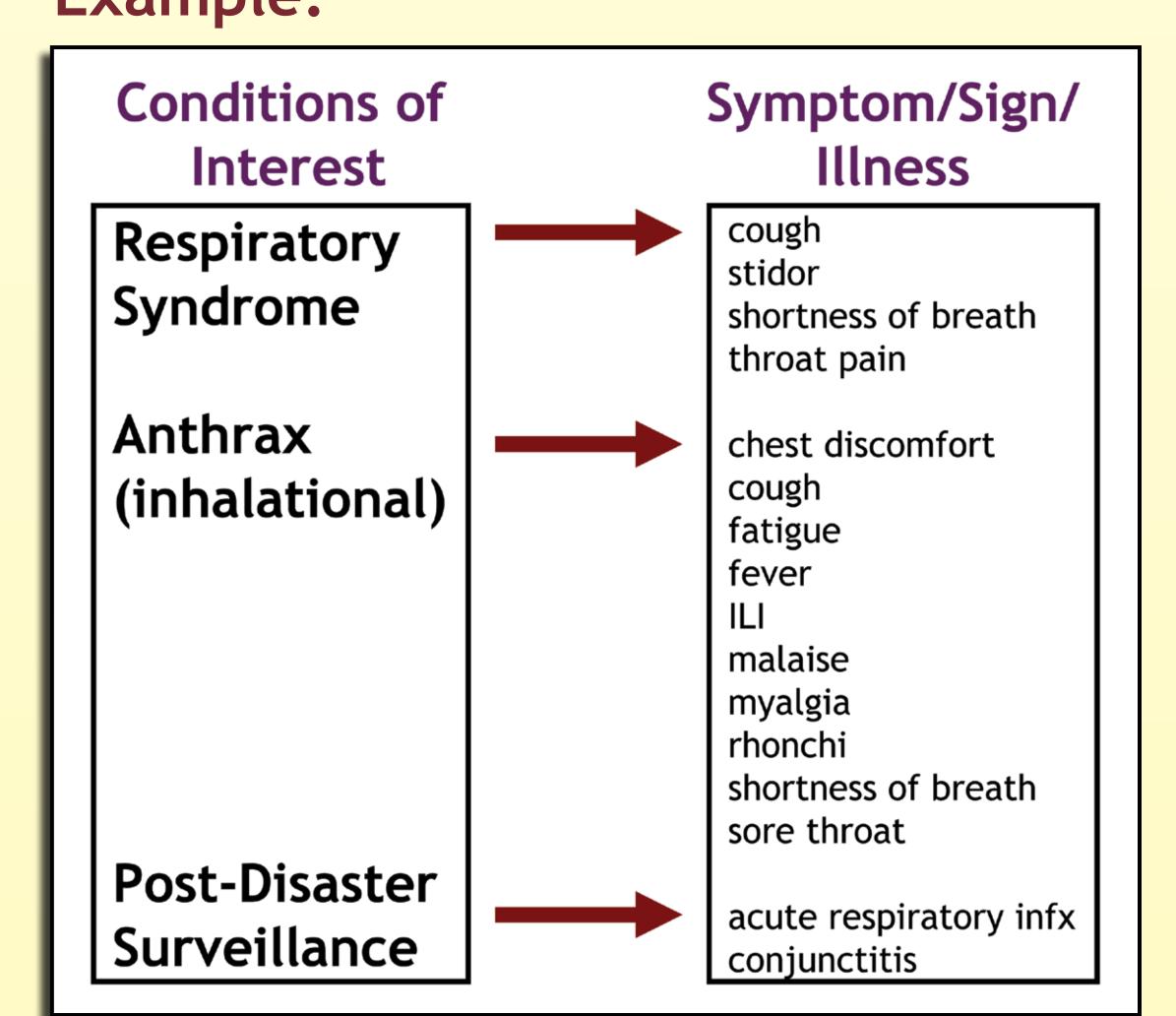
Example: Current Respiratory Syndrome in BioSense and ESSENCE



- Motivation for Defining a Common Set of Clinical Condition Categories
- Clinical condition categories (e.g., dyspnea) are more easily defined than syndromes (e.g., respiratory syndrome)
- Facilitate creation of case definitions and ad hoc queries (e.g., headache OR stiff neck OR fever for a meningitis outbreak)
- Using a common set of clinical condition categories will allow more consistency in interpretation of results from diverse biosurveillance systems while allowing each system to build their own unique syndromes and queries.

Methods

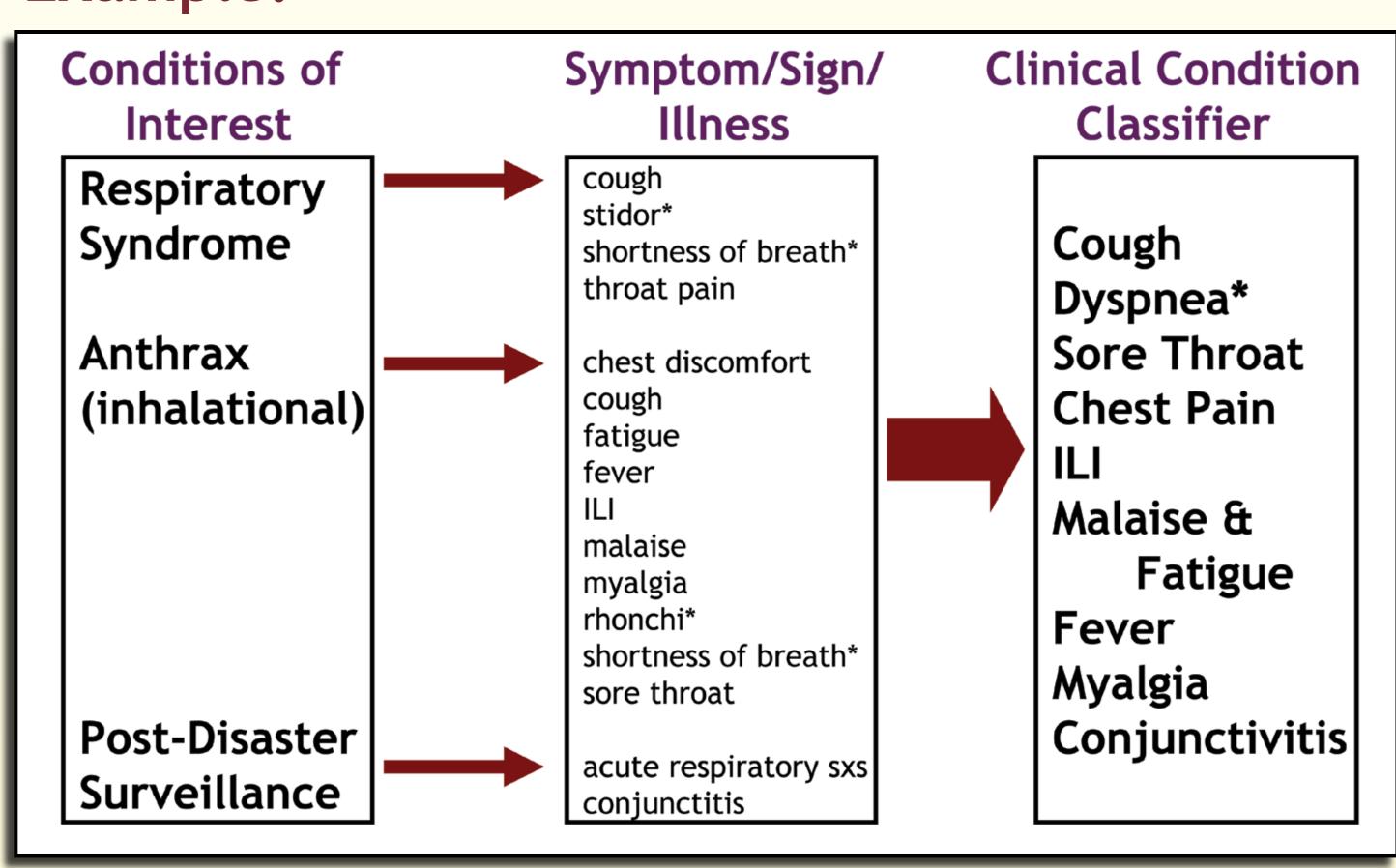
- 1. Identify Surveillance Functions to Support
- A. Support syndromes used in BioSense and ESSENCE
- B. Support counter-bioterrorism surveillance
- C. Support nationally notifiable disease surveillance
- D. Support CDC recommendations for post-disaster surveillance²
 - 2. Generate Set of Symptoms, Signs, Illnesses Example:



3. Aggregate Conditions and Assign SNOMED-CT Term

- Principle: Utility as a distinct category
- Appropriate level of granularity
- Appropriate for chief complaint free text and ICD-9-CM diagnosis codes

Example:



4. Develop Text Definition, Key Words, ICD-9 List for Clinical Condition Categories

Example:

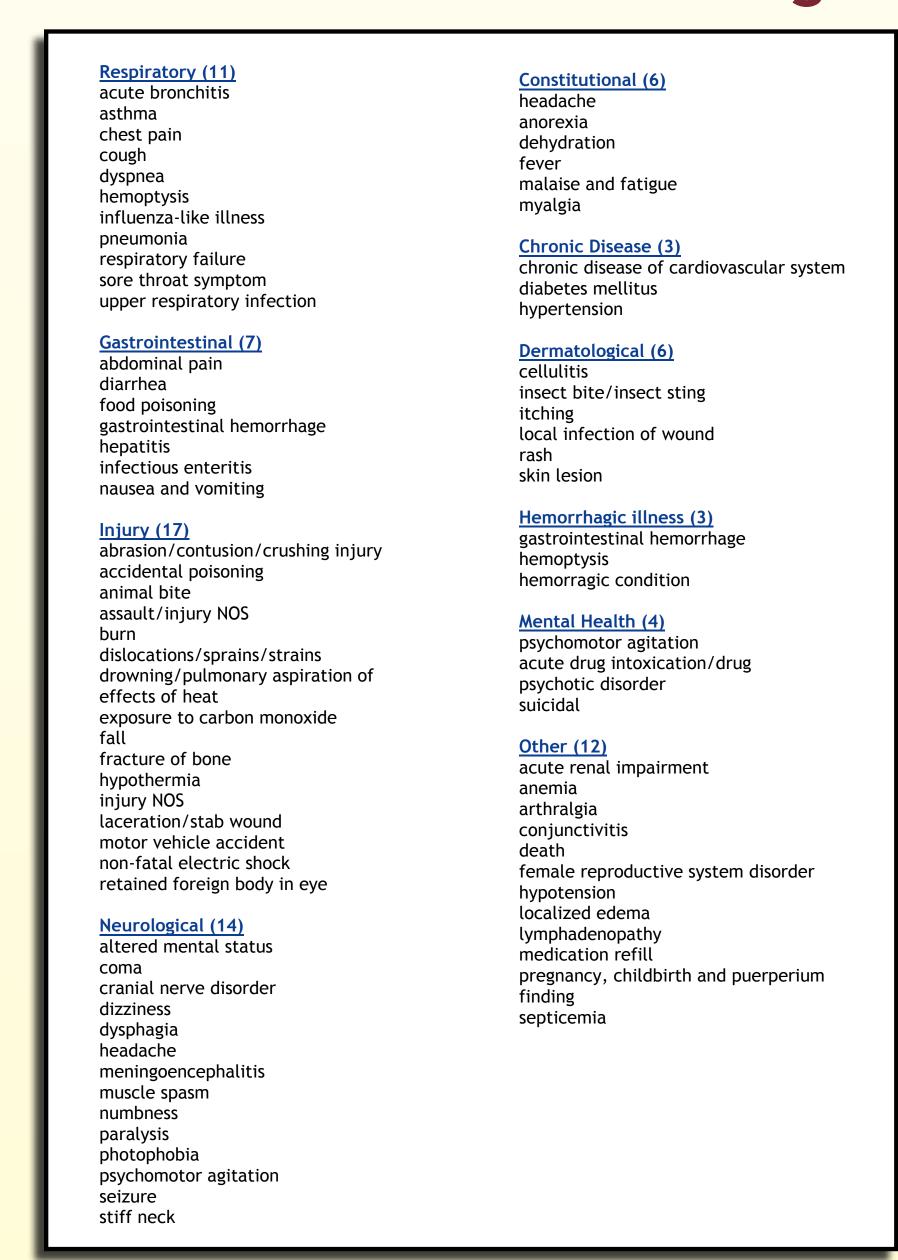
Text definition for <u>respiratory failure</u>:

- Respiratory function fails to maintain adequate oxygen supply and carbon dioxide removal (UMLS)
- Includes: cyanosis, respiratory distress syndrome, respiratory insufficiency, hypoxemia, asphyxia, respiratory arrest, apnea, pulmonary edema
- <u>Does not include</u>: chronic respiratory failure, respiratory failure of newborn, respiratory failure due to surgery or trauma, sleep apnea, pulmonary edema related to heart failure

Results

- Developed criteria and process for selection of clinical condition categories
- Applied criteria to generate:
 - 73 conditions of interest
 - 629 associated symptom/sign/illness
 - 79 clinical condition categories

Draft Clinicial Condition Categories



Discussion:

- The process outlined here represents a knowledge-based approach
- The selected clinical condition categories are appropriate for aggregating chief complaint and coded diagnosis
- Determining "utility as a distinct category" is subjective
- This process does not address specific infections
- This process does not address clinical conditions to exclude from classification (e.g., pregnancy, trauma)
- BioSense and ESSENCE will move towards using a common set of clinical condition categories